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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/571,246

12/05/2006

Joachim Rudhard

10191/4346

6203

26646 7590 08/17/2010  
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EXAMINER

KUSUMAKAR, KAREN M

ART UNIT

PAPER NUMBER

2829

MAIL DATE

DELIVERY MODE

08/17/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/571,246	<b>Applicant(s)</b> RUDHARD, JOACHIM	
	<b>Examiner</b> KAREN M. KUSUMAKAR	<b>Art Unit</b> 2829	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2010.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 9-11 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-11 and 15-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Status of Claims***

1. As of the amendment filed 7/15/10, no claims have been added, claim 14 has been canceled, and claims 9 and 16 have been amended. Therefore, claims 9-11 and 15-18 remain pending, with claims 9 and 16 being independent.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 16-18 rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The substrate, the flat diaphragm, and the Ge-containing layer. How does removal of the Ge-containing layer separate the wafer into components if it is "situated in the layered structure" (i.e. there is substrate material on top of it and below it)? Where is the flat diaphragm located in the sensor unit? Claim 16 states the substrate is made of one of silicon and a layered silicon/insulator structure and the Ge-layer is situated in the layered structure. If the substrate is silicon only, where is the Ge-containing layer situated?

The only support for a diaphragm sensor unit is a vague paragraph on page 4 (line 5-10) of the substitute specification which discloses the Ge-containing layer as a

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functional layer for the diaphragm. No other description or drawing describes this sensor, thus the metes and bounds of this claim are unclear and preclude examination.

Claims 17 and 18 are rejected because they depend from rejected claim 16.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 9, 10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Chinn et al. (US 2004/0087054)*** in view of ***Kub et al. (US 2004/0087054)***.

As to claim 9, Chinn teaches a method for producing at least one of (a) etched holes and (b) etched trenches of a component based on one of (c) silicon and (d) a layered silicon/insulator structure (Fig. 2C), the method comprising: applying a barrier layer (230) to a back of a silicon wafer (227) at a point at which or in whose surroundings an etching procedure is to be completed (p. 3, [0036]); detecting the barrier layer during the etching procedure (p. 3, [0039]); controlling the etching procedure as a function of the detection (p. 3, [0039]); and completely removing the barrier layer after completion of an etching procedure up to the barrier layer while simultaneously separating the wafer into individual components (p. 3, [0038]).

Chinn does not teach the barrier layer comprises at least one of a germanium-containing layer and a germanium layer. However, Chinn does teach the barrier layer can be inorganic (p. 1, [0008]) so long as it has a thermal conductivity of about 0.1 BTU/hr. ft. °F (p. 3, [0039]). Kub teaches the use of SiGe as an etch stop when etching silicon (i.e. wafers, p. 2, [0027]). SiGe is inorganic and meets the required thermal conductivity of Chinn.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use SiGe as the barrier layer so as to use a readily available and industrially accepted etch stop for silicon, since it has been held that choosing from a known, finite list of materials yielding predictable results is not patentable over the prior art. See MPEP 2143(E).

As to claim 10, Chinn in view of Kub further teach the controlling includes interrupting the etching procedure (Chinn, p. 3, [0039]).

As to claim 15, Chinn in view of Kub further teach wherein the at least one of germanium and germanium compounds is detected using one of optical emission spectroscopy and mass spectroscopy (Chinn, p. 3, [0039]).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Chinn et al. (US 2004/0087054)**, as applied to claim 9, and in further view of **Bashir et al. (US 5,888,845)**.

As to claim 11, Chinn in view of Kub teach all the limitations of claim 9 but do not teach the at least one of the germanium and germanium-containing layer

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is buried in a layered structure. However, the use of layered wafers is known in the art. Bashir teaches the use of a layered wafer (Fig. 6) using SiGe (210) as an etch stop that is buried within the layered wafer (col. 3:50-60, Fig. 13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to bury the SiGe layer as taught by Bashir so as to form a sensor.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 9-11 and 15-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any response to this Office Action should be faxed to (571) 273-8300 or mailed to:

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Hand-Delivered responses should be brought to:

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22313

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAREN M. KUSUMAKAR whose telephone number is (571) 270-3520. The examiner can normally be reached on Mon - Thurs 7:30a - 5:00p EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ha Nguyen can be reached on 571-272-1678. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. M. K./  
Examiner, Art Unit 2829  
8/12/2010

/Michael S. Lebentritt/  
Primary Examiner, Art Unit 2829